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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,794	07/31/2006	Dirk Vollmer	3781	1275

7590 02/01/2011  
Striker Striker & Stenby  
103 East Neck Road  
Huntington, NY 11743

EXAMINER
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TIETJEN, MARINA ANNETTE

ART UNIT	PAPER NUMBER
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3753

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02/01/2011

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/587,794	<b>Applicant(s)</b> VOLLMER ET AL.	
	<b>Examiner</b> MARINA TIETJEN	<b>Art Unit</b> 3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 8-11, 16-18 and 21-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 12-15, 19, 20 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/21/2010 has been entered.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-7, 12-15, 19, 20, and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 1 recites the limitation "the damping cylinder forming around a circumference of the damping disk the throttle gap while the damping disk moving inside the damping cylinder", lines 11-13. The limitation is indefinite, because it is unclear what is meant by the limitation.

5. Claims 2-7, 12-15, 19, 20, and 24 are included due to dependency.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 and 24 are rejected, as far as they are definite, under 35 U.S.C. 102(b) as being anticipated by Brehm et al. (U.S. Pat. No. 5,547,165).

Brehm et al. disclose pulse valve (fig. 1) with a closing body (43) that cooperates with a valve seat (41) by at least a valve spring (25) and, in a first switching position, establishes a flow connection between a supply channel (40) and a discharge channel (44) and, in a second switching position, blocks the flow connection, the closing body (43) periodically moving in a reciprocating motion between the two switching positions during an actuation of the pulse valve, wherein a hydraulic damping to a movement of the closing body by a throttle gap (50b, fig. 3) occurs in a damped range (within 51b), wherein the closing body is connected via a rod (21b) with a damping disk (22b) made of structural material, the damping disk provided in a damping cylinder (51b) that is open on an end face, the damping cylinder forming around a circumference of the damping disk the throttle gap while the damping disk moving inside the damping cylinder, and

wherein the damping disk (22b) exits the damping cylinder shortly before the closing body reaches the second switching position (as shown in fig. 3).

wherein the reciprocating motion progresses from the first switching position to the second switching position sequentially through the damped range (within 51b), a transition region (at point of entry into 50b), and an undamped range (shown in fig. 3); and

wherein a surface of the damping disk (22) is larger than a cross section of the closing body (43).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claim 2 is rejected, as far as it is definite, under 35 U.S.C. 103(a) as being unpatentable over Brehm et al. (U.S. Pat. No. 5,547,165).

Brehm et al. disclose pulse valve (fig. 1) with a closing body (43) that cooperates with a valve seat (41) by at least a valve spring (25) and, in a first switching position, establishes a flow connection between a supply channel (40) and a discharge channel (44) and, in a second switching position, blocks the flow connection, the closing body (43) periodically moving in a reciprocating motion between the two switching positions during an actuation of the pulse valve, wherein a hydraulic damping to a movement of the closing body by a throttle gap (50b, fig. 3) occurs in a damped range (within 51b), wherein the closing body is connected via a rod (21b) with a damping disk (22b) made of structural material, the damping disk provided in a damping cylinder (51b) that is open on an end face, the damping cylinder forming around a circumference of the damping disk the throttle gap while the damping disk moving inside the damping cylinder, and wherein the damping disk (22b) exits the damping cylinder shortly before the closing body reaches the second switching position (as shown in fig. 3).

wherein the reciprocating motion progresses from the first switching position to the second switching position sequentially through the damped range (within 51b), a transition region (at point of entry into 50b), and an undamped range (shown in fig. 3).

Brehm et al. further disclose various embodiments having various depths of the disk in relation to the damping cylinder. However, Brehm et al. does not disclose wherein the undamped range (64) extends for approximately 0.5 millimeters before the closing body reaches the second switching position.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the depth of the undamped range to extend for

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approximately 0.5 millimeters before the closing body reaches the second switching position, since it has been held that the provision of adjustability, where needed, involves only routine skill in the art.

11. Claim 3 is rejected, as far as it is definite, under 35 U.S.C. 103(a) as being unpatentable over Brehm et al. (U.S. Pat. No. 5,547,165) in view of Wang et al. (6,896,236).

In regard to Claim 3, Brehm et al. teach the limitations as discussed in the rejections of Claims 1, 2, and 24 above, but fails to specifically teach where a bypass extends in parallel with the throttle gap and is actuated along the undamped range.

Wang discloses a damped reciprocating valve. Wang teaches where a bypass (372, 374) extends in parallel with a damping disk 68.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate, in Brehm et al., a bypass extending parallel with the throttle gap, as taught by Wang, so as to control the displaced damping fluid upon movement of the damping disk and closing body.

12. Claims 4-7 are rejected, as far as they are definite, under 35 U.S.C. 103(a) as being unpatentable over Brehm et al. (U.S. Pat. No. 5,547,165) in view of Gaskell (4,889,288).

In regard to Claims 4, 6, and 7, Brehm et al. teach the limitations as discussed in the rejection of Claim 1 above, but fails to specifically teach where the throttle gap expands during the transition region.

Gaskell discloses a damped hydraulic pulse valve. In Figure 3, Gaskell teaches where a chamfered throttle gap (48) of a damping cylinder (27) expands at a transition region at (48) as the reciprocating motion of a closing body (21) progresses. The chamfered throttle gap (48) expands continuously in the direction of an open end (27).

At the time of the invention, it would have been obvious by one of ordinary skill in the art to include, in Brehm et al., a throttle gap that expands with the linear movement of the closing body, as taught by Gaskell, so as to gradually reduce the damping effect before the damping disk enters the undamped region.

In regard to Claim 5, Brehm et al. teach where the damping disk (22b) is damped upon reentering the damping cylinder (within 51b).

13. Claim 12 is rejected, as far as it is definite, under 35 U.S.C. 103(a) as being unpatentable over Brehm et al. (U.S. Pat. No. 5,547,165) in view of Koneda et al. (6,681,730).

In regard to Claim 12, Brehm et al. teach the limitations as discussed in the rejection of Claim 1 above, but fails to specifically teach where the damping disk has an axially projecting edge about its circumference.



Koneda discloses a dampened electromagnetic valve. Koneda teaches, in Figure 2, where a damping disk (66) has an axially projecting edge on its upper surface and around its circumference.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate, in Brehm et al., an axially projecting edge about the circumference of the damping disk, as taught by Koneda, so as to create a desired damping effect on the damping disk by way of a concave surface.

14. Claim 13 is rejected, as far as it is definite, under 35 U.S.C. 103(a) as being unpatentable over Brehm et al. (U.S. Pat. No. 5,547,165) in view of Cameron et al. (4,190,076).

In regard to Claim 13, Brehm et al. teach the limitations as discussed in the rejection of Claim 1 above, but fails to specifically teach where the damping disk has a noncircular surface.

Cameron discloses a valve with fluid damping. In Figure 3, Cameron teaches where a damping disk (84) has noncircular surfaces (92) (see Abstract).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate, in Brehm et al., noncircular surfaces on the damping disk, as taught by Cameron, so as to provide a slidable contact between the damping disk and damping cylinder while still allowing for damping fluid to pass around the damping disk.

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15. Claims 14 and 15 are rejected, as far as they are definite, under 35 U.S.C. 103(a) as being unpatentable over Brehm et al. (U.S. Pat. No. 5,547,165) in view of Volcov (2,868,492).

In regard to Claims 14 and 15, Brehm et al. teach the limitations as discussed in the rejection of Claim 1 above and where the damping disk (9) is very thin, but fails to specifically teach where the damping disk has a perforated structure.

Volcov discloses a discharge valve with hydraulic damping. Volcov teaches where the damping disk (5) possesses a fine perforated structure with holes that can be measured in micrometer units (col. 2, lines 1-15).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate, in Brehm et al., perforations on the damping disk, as taught by Volcov, so as to create a throttled dampening effect on the damping disk utilizing fluid passing directly through the damping disk. The specific size of perforations chosen would result in a proportional change in damping effect on the damping disk and is therefore a design expedient.

16. Claims 19-20 are rejected, as far as they are definite, under 35 U.S.C. 103(a) as being unpatentable over Brehm et al. (U.S. Pat. No. 5,547,165) in view of Masaji et al. (JP 58028079 A, English abstract only).

In regard to Claims 19-20, Brehm et al. fail to teach where a diaphragm has a fine-meshed composite network structure with the cross-section of the mesh in the micrometer range.

However, Masaji teaches where a diaphragm (6) is fluid permeable via holes (25 in Figure 2). As such, the mere duplication of holes on the diaphragm of Masaji would necessarily form a fine-meshed network structure as claimed. It has been held that the mere duplication of parts over the prior art supports a prima facie case of obviousness. As with virtually any object, the holes (25) can be measured in the micrometer range. See MPEP 2144.04. In order for the diaphragm of Masaji to display its elastic properties, it is notoriously known in the art for the diaphragm to be formed of a composite material.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate, in Brehm et al., a fine meshed composite diaphragm, as taught by Masaji, so as to create a desired dampening effect as fluid passes directly through the diaphragm.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARINA TIETJEN whose telephone number is (571) 270-5422. The examiner can normally be reached on Mon-Thurs, 9:30AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN HEPERLE can be reached on (571) 272-4913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. T./

Examiner, Art Unit 3753

/John K. Fristoe Jr./

Primary Examiner, Art Unit 3753